the another data control device instructs the receiving node to receive the information data transmitted through the first communication channel using a protocol of the first physical network.

REMARKS

Favorable reconsideration of this application as presently amended and in light of the following discussion is respectfully requested.

Claims 1-92 are pending in the present application with Claims 1-2, 4-8, 40-41, 43-47 and 91-92 of the present amendment.

In the outstanding Office Action, Claims 1, 40 and 91-92 were rejected under 35 U.S.C. §103(a) as unpatentable over Keshav et al in view of Eisenhandler; and Claims 1-92 were rejected under 35 U.S.C. §103(a) as unpatentable in view of Keshav et al.

Applicants first note the claims have been amended to recite a first communication channel and a first physical network and a second communication channel and a second physical network in light of the Examiner's comments noted in section 21 at page 17 of the outstanding Office Action. Turning now to the rejection on the merits.

Claims 1, 40 and 91-92 stand rejected under 35 U.S.C. §103(a) as unpatentable over Keshav et al in view of Eisenhandler. This rejection is respectfully traversed.

As discussed in the previously filed amendment, Claim 1 is directed to a data transfer control device on a network to which a transmitting node is connected, such as the 1st AV control terminal 2 shown in Fig. 1 (see Fig. 5 for its operation).

In the claimed data transfer control device, the establishing unit establishes a second communication channel in the second physical network 11 (1st 1394 bus 11), while a

reserving unit reserves a first communication channel for transferring data from the second communication channel to another data transfer control device 5 (2nd AV control terminal) or the receiving node 6 which is connected to the first physical network 12 (2nd 1394 bus). Then, the commanding unit commands the transmitting node 1 to transmit data by using a protocol of the second physical network.

In other words, the claimed data transfer control device establishes a channel (the second communication channel) in one network (the second physical network) to which it is directly connected, while reserving another channel (the first communication channel) in another network (the first physical network) in correspondence to the established channel (the second communication channel). Then, the claimed data transfer control device commands the transmitting node to transmit data into the established channel (the second communication channel) in the second physical network to which the transmitting node is connected, which is done by using a protocol of the second physical network because the transmitting node may only support a protocol of the second physical network.

When the transmitting node transmits data through the second communication channel according to this command, data transmitted through the second communication channel will be further transmitted through the first communication channel that is already reserved in correspondence to the second communication channel by the data transfer control device, and eventually reach to the receiving node through the first communication channel.

Note that the transmitting node only needs to know the second communication channel in the second physical network to which it is connected, and there is no need for the transmitting node to know about the first communication channel on the first physical network. Consequently, it's sufficient for the claimed data transfer control device to

command the transmission through the second communication channel with respect to the transmission made (i.e., it's sufficient to notify the second communication channel alone).

In this way, it is possible to perform data transfer to the receiving node even when the transmitting node connected to the second physical network only supports a protocol of the second physical network, regardless of the inter-connected network environment up to the receiving node (see page 4, lines 23-29 of the present specification).

On the contrary, Keshav et al disclose an inter-network data system as shown in Fig. 4, between a program (or routine) on a processing system 330 or 100 that is connected to a connectionless network (Internet) and another program (or routine) on another processing system 320 connected to a connection-oriented network (ATM network).

Generally, programs implemented on a connectionless network cannot utilize services available on the ATM network, because ATM requires establishing virtual circuits and the specific data packet format (see col. 5, lines 40-45). Keshav et al propose to resolve this problem by providing a connection manager 410, which establishes and maintains connections or virtual circuits that enable communication between routines operated in different networks (see col 7, lines 19-21, and the abstract, lines 5-7).

Further, in Keshav et al, the program on the processing system 330 or 100 on the Internet side communicates with the connection manager 410 by using either the server connection routine of Fig. 5 when it wants to function as a server, or the client connection routine of Fig. 6 when it wants to function as a client.

Thus, even if it was possible to regard the processing system 330 or 100 as corresponding to the claimed transmitting node, the connection manager 410 as corresponding to the claimed data transfer control device, the processing system 320 as

corresponding to the claimed receiving node, the Internet as corresponding to the claimed second physical network, and the ATM network as corresponding to the claimed first physical network, the functions of the connection manager 410 of Keshav et al and the claimed data transfer control device are completely different.

Namely, in Keshav et al, the connection manager 410 establishes a single connection between client and server programs and identifies this single connection by a VCI (virtual, connection identifier) used on the ATM network side (see col. 9, lines 18-20 and lines 25-31, as well as col. 10, lines 49-56), and this VCI is notified to the program on the Internet side and subsequently used by the program on the Internet side in performing communications with the program on the ATM side (see col. 9, line 36-42 and col. 10, lines 62-66).

Thus, Keshav et al actually fail to disclose any functionality for the connection manager 410 to establish a channel on the Internet side on one hand and to reserve a channel on the ATM network side on the other hand, and then command the transmission through a channel on the Internet side with respect to the program on the Internet side.

Further, in Keshav et al, the program on the Internet side must know the VCI to be used on the ATM network side, and must be capable of handing data in the ATM format (i.e., the program on the Internet side must support a protocol on the ATM network side). This is in contrast to the claimed transmitting node which only supports a protocol on the second physical network (Internet).

In more detail, the outstanding Office Action states the claimed establishing unit is disclosed in col. 10, lines 26-29 of Keshav et al. However, the claimed establishing unit is required to establish a channel in the second physical network to which the transmitting node is connected. As discussed above, Keshav et al do not teach or suggest such an operation.

Rather, col. 10, lines 26-29 in Keshav et al only describe the client connection routine obtaining a virtual circuit between the program on the Internet side and the program on the ATM network side, not a channel in the second physical network (Internet).

The outstanding Office Action also states the claimed reserving unit is disclosed in column 10, lines 49-53 of Keshav et al. However, the claimed reserving unit is required to reserve a channel in the first physical network to which the receiving node is connected. As discussed above, Keshav et al do not teach or suggest an operation. Rather, col. 10, lines 49-53 of Keshav et al only describe a part of this client connection routine regarding a message for indicating that a connection between the program on the Internet side and the program on the ATM side has been established. Here, Keshav et al clearly refer to the same connection that is referred in col. 10, lines 26-28, which is not a channel in the first physical network (ATM network).

The outstanding Office Action also states the claimed commanding unit is disclosed in col. 5, lines 58-64 of Keshav et al. However, the claimed commanding unit is required to command the transmission to the transmitting node using a protocol of the second physical network. On the contrary, col. 5, lines 58-64 in Keshav et al only describe that the application program A400 communicates with a connection service routines library 405, using either inter-process communication within the processing unit or a connection between two suitably programmed circuits or devices within the processing system.

In other words, this section of Keshav et al only describes a communication that takes place within a single processing system 100, which is clearly not a command from the data transfer control device (connection manager 410) to the transmitting node (processing system

330 or 100), and which is clearly also not a command for the transmission through the second communication channel in the second physical network (Internet).

The outstanding Office Action also states the claimed use of a protocol of the second physical network is disclosed in col. 4, lines 64-88 of Eisenhandler. However, col. 4, lines 64-88 in Eisenhandler only state the brouter function can transfer packets between different media. Clearly this disclosure fails to teach or suggest the use of a protocol of the second physical network for the purpose of commanding the transmission through the second communication channel, from the data transfer control device to the transmitting node that is connected to the second physical network.

Accordingly, any combination of Keshav et al and Eisenhandler do not teach or suggest the features recited in Claim 1. Further, the same arguments apply to the corresponding method Claim 40. Therefore, it is respectfully requested this rejection be withdrawn.

Claims 1-92 stand rejected under 35 U.S.C. §103(a) as unpatentable over Keshav et al. This rejection is respectfully traversed.

As discussed above, Keshav et al do not teach or suggest the features recited in independent Claims 1 and 40. Further, the present application includes 14 other independent device Claims 1, 13, 20, 28-30, 32, 34-38, 79-80 and 84 (as well as the other corresponding 14 method Claims 52, 58, 67-69, 71, 73-77, 85-86 and 90). These other independent claims recite features not found in independent Claims 1 and 40 as discussed above.

In more detail, regarding independent Claim 13, the outstanding Office Action rejects Claim 13 for the same reasons as Claim 1, even though Claim 13 recites features different from Claim 1.

Namely, Claim 13 recites a receiving unit which receives a control message containing a header information and an information regarding a channel. Such a control message is not recited in Claim 1. Further, Claim 13 also recites a commanding unit which commands the receiving node to receive the data that has the header information or that is transferred through the channel, using a protocol depending on the first physical network. This commanding unit is different from the commanding unit of Claim 1, which commands the transmitting node using a protocol depending on the second physical network.

Further, note that Claim 1 is directed to a data transfer control on the second physical network side, while Claim 13 is directed to a data transfer control on the first physical network side. Therefore, the rejection of Claim 13 for the same reasons as Claim 1 is improper.

Regarding independent Claim 20, the outstanding Office Action rejects Claim 20 for the same reasons as Claim 4, even though Claim 20 recites features different from Claim 4.

Namely, Claim 20 recites a transfer unit that transfers data transmitted through the reserved communication path to the channel established by the establishing unit, and a commanding unit for commanding the receiving node to receive data transferred through this channel, using a protocol depending on the first physical network. The transfer unit and commanding unit are not recited in Claim 4 or its base Claims 1 and 3.

Further, note that Claim 20 is also directed to a data transfer control on the first physical network side, while Claim 4 (which is dependent on Claim 1) is directed to a data transfer control on the second physical network side. Therefore, the rejection of Claim 20 for the same reasons as Claim 4 is improper.

Regarding independent Claim 28, the outstanding Office Action rejects Claim 28 for the same reasons as Claim 5, even though Claim 28 recites features different from Claim 5.

Namely, Claim 28 recites a second establishing unit for establishing a communication path between the data transfer control device and the first physical network or a transmitting node. This feature is not recited in Claim 5 or its base Claims 1 and 3.

Claim 28 also recites a commanding unit for commanding the receiving node to receive data transferred through the channel established by the first establishing unit using a protocol depending an the second physical network. Note that the receiving node is connected to the second physical network in Claim 28, unlike Claim 1. Further, such a claimed feature is not recited in Claim 5 or its base Claims 1 and 3 (i.e., commanding to the receiving node is not recited in Claims 1, 3 and 5).

Claim 28 also recites a conversion unit which converts data format from a first format depending on the third physical network or the first physical network and/or an upper logical network of the third physical network or the first physical network, into a second format depending on the second physical network. In contrast, Claim 5 recites a conversion unit which converts a data format from a first format depending on the second physical network into a second format depending on the third physical network or the first physical network and/or an upper logical network of the third physical network or the first physical network. In other words, the conversion recited in Claim 28 is reserve of the conversion recited in Claim 5.

Further, Claim 28 recites a transfer unit for transferring format converted data to the channel established by the first establishing unit. In contrast, in Claim 5, the format converted data is transmitted to the third physical network or the first physical network

through a channel indicated by the control message or after attaching the header information, but not to a channel established by the establishing unit.

Further, note that Claim 28 is directed to a data transfer control on the second physical network side, however, in Claim 28 the second physical network is a network to which the receiving node is connected, whereas Claim 1 is directed to a data transfer control on a network to which the transmitting node is connected.

Therefore, the rejection of Claim 28 for the same reason as Claim 5 is improper.

Regarding independent Claim 29, the outstanding Office Action states the claimed second establishing unit is disclosed in col. 7, lines 12-17 of Keshav et al, even though Claim 29 recites other features that are not recited in Claim 1.

Namely, Claim 29 recites a commanding unit for commanding the receiving node to receive data through the channel established by the first establishing unit, using a protocol depending on the second physical network. Note the receiving node is connected to the second physical network in Claim 29, unlike Claim 1. As already noted above, commanding to the receiving node is not recited in Claim 1.

Claim 29 also recites an encoding/decoding unit which is not recited in any other claims. Further, Claim 29 recites a transfer unit for transferring encoded/decoded data to the channel established by the first establishing unit, which is also not recited in any other claims. Note that Claim 29 is also directed to a data transfer control on the second physical network side, but in Claim 29 the second physical network is a network to which the receiving node is connected, whereas Claim 1 is directed to data transfer control on a network to which the transmitting node is connected.

Therefore, rejecting Claim 29 for the same reason as Claim 1 is improper.

Regarding independent Claim 30, the outstanding Office Action rejects Claim 30 for the same reasons as Claim 1, even though Claim 30 recites features different from Claim 1.

Namely, Claim 30 recites an establishing unit for establishing a communication path using a signaling protocol of a network layer. Claim 30 also recites a receiving unit for receiving a control message, and a commanding unit for commanding the receiving made. These features are not recited in Claim 1.

Further, note that Claim 30 is directed to data transfer control on the first physical network side, but in Claim 30 the first physical network is a network to which the receiving node is connected, whereas Claim 1 is directed to a data transfer control on a network to which the transmitting node is connected.

Therefore, rejecting Claim 30 for the same reason as Claim 1 is improper.

Regarding independent Claim 32, the outstanding Office Action rejects Claim 32 for the same reasons as Claim 1, even though Claim 32 recites features different from Claim 1.

Namely, Claim 32 recites an establishing unit for establishing a communication path using a signaling protocol of a network layer, and a transmission unit for transmitting a control message. These features are not recited in Claim 1.

In addition, note that Claim 32 is directed to a data transfer control on the first physical network side, which is a network to which the transmitting node is connected, similarly as in Claim 1, but as discussed above Claims 1 and 32 include different features.

Regarding independent Claim 34, the outstanding Office Action rejects Claim 34 for the same reason as Claim 29, even though Claim 34 recites features different from Claim 29.

Namely, Claim 34 recites a second establishing unit for establishing a communication path by exchanging a signaling protocol of a network layer, which is different from the

second establishing unit of Claim 29. Claim 34 also recites a transmission unit for transmitting a control message. These features are not recited in Claim 29. Note also that Claim 34 is directed to a relay device, which is clearly distinct from a data transfer control device to which Claim 29 is directed.

Regarding independent Claim 35, the outstanding Office Action rejects Claim 35 for the same reasons as Claim 2, even though Claim 35 recites features different from Claim 2.

Namely, Claim 35 recites a reception unit for receiving a control message, and an establishing unit for establishing a communication path by exchanging a signaling protocol of a network layer, which is different from an establishing unit of Claim 1 (Claim 2 depends on Claim 1). These features recited in Claim 35 are not recited in Claim 2. Note also that Claim 35 is directed to a relay device, which is clearly distinct from a data transfer control device to which Claim 2 is directed.

Regarding independent Claim 36, the outstanding Office Action rejects Claim 36 for the same reason as Claim 5, even though Claim 36 recites features different from Claim 5.

Namely, Claim 36 recites a receiving unit for receiving a control message and a transmission unit which converts the data format of the received data according to the control message. These features are not recited in Claim 5. Note also that Claim 36 is directed to a relay device, which is clearly distinct from a data transfer control device to which Claim 5 is directed.

Regarding independent Claim 37, the outstanding Office Action rejects Claim 37 for the same reasons as Claim 6, even though Claim 37 recites features different from Claim 6.

Namely, Claim 37 recites a receiving unit for receiving a control message, and a transmission unit which encodes or decodes the received data according to the control

message. These features are not recited in Claim 6. Note also that Claim 37 is directed to a relay device, which is clearly distinct from a data transfer control device to which Claim 6 is directed.

Regarding independent Claim 38, the outstanding Office Action rejects Claim 38 for the same reason as Claim 9, even though Claim 38 recites features different from Claim 9.

Namely, Claim 38 recites a collecting unit for collecting attribute information according to a protocol depending on the first physical network and a notifying unit for notifying the attribute information according to a network layer protocol not depending on the first physical network, which are somewhat different from the collecting unit and the notifying unit of Claim 9.

Moreover Claim 38 is directed to a control device connected to a first physical network, which is clearly distinct from a data transfer central device connected to a second physical network to which Claim 9 is directed.

Regarding independent Claim 79, the outstanding Office Action rejects Claim 79 for the same reasons as Claim 1, even though Claim 79 recites features different from Claim 1.

Namely, Claim 79 recites a control unit for controlling data transfer, and a commanding unit for commanding the receiving node. These features are not recited in Claim 1 (as already noted above, commanding to the receiving node is not recited in Claim 1).

Note that Claim 79 is directed to a data transfer control on the first physical network side, but in Claim 79 the first physical network is a network to which the receiving node is connected, whereas Claim 1 is directed to a data transfer control on a network to which the transmitting node is connected.

Regarding independent Claim 80, the outstanding Office Action rejects Claim 80 for the same reasons as Claim 2, even though Claim 80 recites features different from Claim 2.

Namely, Claim 80 recites a commanding unit for notifying first and second identification information to a second communication device, and a request unit for requesting a transfer of the data flow to a third communication device. These features are not recited in Claim 2 or its base Claim 1.

Note that Claim 80 is directed to a communication device connected with a network of broadcast type, which is clearly distinct from a data transfer control device to which Claim 2 is directed.

Regarding independent Claim 84, the outstanding Office Action states the claimed second receiving unit is disclosed in col. 12, lines 54-58 of Keshav et al, even though the claimed second receiving unit is required to temporarily receive the specified data flow of the network layer, whereas Keshav et al only describe a decapsulation in the case of the encapsulated packet, which is totally different.

In addition, Claim 84 also recites a first receiving unit for receiving a notification of a correspondence between a first identification information and a second identification information, which is clearly not disclosed by Keshav et al.

Note that Claim 84 is also directed to a communication device connected with a network of broadcast type, which is clearly distinct from a data transfer control device to which Claim 1 is directed.

Therefore, in light of the above comments, it is respectfully submitted each of the independent claims and the claims depending therefrom patentably define over Keshav et al or any combination of Keshav et al with Eisenhandler.

Consequently, in light of the above discussion in view of the present amendment, the present application is believed to be in condition for allowance and an early and favorable action to that effect is respectfully requested.

Respectfully submitted,

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IN THE CLAIMS

Please amend Claims 1-2, 4-8, 40-41, 43-47 and 91-92 as follows.

1. (Twice Amended) A data transfer control device for controlling transfer of Information data to a receiving node connected with a first physical network from a transmitting node connected with a second physical network, the data transfer control device being connected with the second physical network and comprising:

an establishing unit configured to establish a [first] second communication channel in the second physical network for transmitting the information data from the transmitting node;

a reserving unit configured to reserve a [second] first communication channel in the first physical network for transferring the information data transmitted through the [first] second communication channel to another data transfer control device connected to the first physical network and/or the receiving node; and

a commanding unit configured to command the transmitting node to transmit the information data through the [first] second communication channel, by using a protocol of the second physical network.

2. (Twice Amended) The device of claim 1, wherein the reserving unit transmits a control message commanding a network connection device which connects the second

physical network and a third physical network, to register a correspondence between the [first] second communication channel in the second physical network and a header/channel information depending on the third physical network.

4. (Twice Amended) The device of claim 3, further comprising:

an interface unit configured to connect the data transfer control device to a third physical network or the first physical network; and

a transmission unit configured to transmit the information data received through the [first] second communication channel in the second physical network to the third physical network or the first physical network, onto a channel indicated by said control message, or after attaching the header information contained in said control message.

5. (Twice Amended) The device of claim 3, further comprising:

an interface unit configured to connect the data transfer control device to a third physical network or the first physical network;

a conversion unit configured to convert a data format of data received through the [first] second communication channel, from a first data format depending on the second physical network to a second data format depending on the third physical network or the first physical network and/or an upper logical network of the third physical network or the first physical network; and

a transmission unit configured to transmit said data with the data format converted by the conversion unit as the information data to the third physical network or the first physical network, onto a channel indicated by said control message, or after attaching the header information contained in said control message.

6. (Amended) The device of claim 3, further comprising:

an encoding/decoding unit configured to encode/decode data received through the [first] second communication channel; and

a transmission unit configured to transmit the information data encoded/decoded by the encoding/decoding unit, to a channel indicated by said control message, or after attaching a header information contained in said control message.

7. (Twice Amended) The device of claim 1, wherein the establishing unit establishes the [first] second communication channel in a form of a broadcast type channel.

8. (Twice Amended) The device of claim 1, wherein the reserving unit communicates an information regarding a communication resource required for the [second] first communication channel, with said another data transfer control device and/or the receiving node.

40. (Twice Amended) A method for controlling transfer of information data to a receiving node connected with a first physical network from a transmitting node connected with a second physical network, at one data transfer control device connected with the second ,physical network, the method comprising the steps of:

(a) establishing a [first] second communication channel in the second physical network for transmitting the information data from the transmitting node;

(b) reserving a [second] first communication channel in the first physical network for transferring the information data transmitted through the [first] second communication channel to another data transfer control device connected to the first physical network and/or the receiving node; and

(c) commanding the transmitting node to transmit the information data through the [first] second communication channel, by using a protocol of the second physical network.

41. (Twice Amended) The method of claim 40, wherein the step (b) transmits a control message commanding a network connection device which connects the second physical network and a third physical network, to register a correspondence between the [first] second communication channel in the second physical network and a header/channel information depending on the third physical network.

43. (Twice Amended) The method of claim 42, further comprising the step of:

(d) connecting said one data transfer control device to a third physical network or the first physical network; and

(e) transmitting the information data received through the [first] second communication channel in the second physical network to the third physical network or the first physical network, onto a channel indicated by said control message, or after attaching the header information contained in said control message.

44. (Twice Amended) The method of claim 42, further comprising the steps of:

(d) connecting said one data transfer control device to a third physical network or the first physical network; and

(e) converting a data format of dots received through the [first] second communication channel, from a first data format depending an the second physical network to a second data format depending on the third physical network or the first physical network and/or an upper logical network of the third physical network or the first physical network; and

(f) transmitting said data with the data format converted by the step (d) as the information data to the third physical network or the first physical network, onto a channel

indicated by said control message, or after attaching the header information contained in said control message.

45. (Twice Amended) The method of claim 42, further comprising the steps of:

(d) encoding/decoding data received through the [first] second communication channel; and

(e) transmitting said data encoded/decoded by the step (d) as the information data, to a channel indicated by said control message, or after attaching a header information contained in said control message.

46. (Twice Amended) The method of claim 40, wherein the step (a) establishes the [first] second communication channel in a form of a broadcast type channel.

47. (Twice Amended) The method of claim 40, wherein the step (b) communicates an information regarding a communication resource required for the [second] first communication channel, with said another data transfer control device and/or the receiving node.

91. (Amended) The device of claim 1, wherein when the information data from the transmitting node is requested to be transmitted to the receiving node via the another data transfer control device,

the another data transfer control device instructs the data transfer control device to transmit the information data from the transmitting node to the receiving node,

the data transfer control device communicates with the transmitting node via the protocol of the second physical network and establishes the [first] second communication channel between the transmitting node and a network control device,

the network control device establishes the [second] first communication channel between the network control device and the receiving node, and

the another data control device instructs the receiving node to receive the information data transmitted through the [second] first communication channel using a protocol of the first physical network.

92. (Amended) The method of claim 40, wherein when the information data from the transmitting node is requested to be transmitted to the receiving node via the another data transfer control device,

the another data transfer control device instructs the data transfer control device to transmit the information data from the transmitting node to the receiving node,

the data transfer control device communicates with the transmitting node via the protocol of the second physical network and establishes the [first] second communication channel between the transmitting node and a network control device,

the network control device establishes the [second] first communication channel between the network control device and the receiving node, and

the another data control device instructs the receiving node to receive the information data transmitted through the [second] first communication channel using a protocol of the first physical network.3